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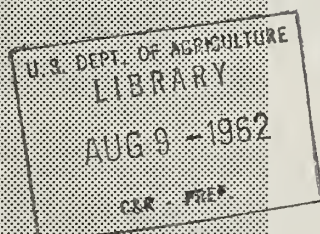
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# USDA Centennial REFERENCE AID FOR SPEAKERS



Growth Through Agricultural Progress



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Centennial Committee

UNITED STATES DEPARTMENT OF AGRICULTURE

May 1962

## FOREWORD

This Reference Aid was developed to provide speakers with helpful background material, quotations, and ideas for use in talks or discussions in connection with the Centennial observance of the United States Department of Agriculture.

In addition to a suggested talk and a series of quotations by national leaders, this aid also includes a number of short statements describing the history, purpose, and accomplishments of USDA agencies and the programs they administer. These statements may be worked into the suggested talk to better adapt it for particular events. They may also be helpful in preparing for panel discussions or other occasions where briefed material about the Department of Agriculture and its history and work is needed.



NOTE: This suggested talk can be adapted and enlarged for a variety of occasions by working into it added USDA program details and useful quotes to be found elsewhere in this Reference Aid.

13005

AMERICAN AGRICULTURE'S WONDROUS 100 YEARS

This is a memorable year for American agriculture. It is the Centennial of the U. S. Department of Agriculture and the system of land-grant colleges and universities.

Today--100 years after President Abraham Lincoln signed the act establishing the Department, and the Morrill Act creating the colleges-- the American agricultural plant is the most efficient, and potentially the most productive, in the world. And the American people are the best fed in the world, at a cost for comparable foodstuffs well below that which consumers in any other country have to pay.

Agriculture is the United States' biggest business, employing more than 7 million people on its 3-3/4 million farms and ranches. And it is indeed significant that these 7 million produce the food and other commodities consumed by our 185 million people. In other words, each farm worker today grows enough food and fiber for 27 people. When President Lincoln signed the act creating the Department of Agriculture, on May 15, 1862, each farm worker produced enough food and fiber for only 5 people.

These enviable attainments by American agriculture, which we take more or less for granted, are in large measure a result of the 10 ensuing decades of research, education and varied technical, financial and other services to farmers and ranchers and other land users, to the processors and marketers

of farm and forest products and--even more importantly--to the consumers of food, fiber, oil and wood products from our land. These services have been developed by the Department, the colleges, and the State agricultural experiment stations authorized by the 1887 Hatch Act, with which the Department cooperates.

Important to our accomplishments, also, have been the contributions of the State departments of agriculture. But most essential of all has been the successful conduct of the business of farming by hard-working, determined, and intelligent American landowners and operators, from Colonial times to the 1960's.

First in prominence among them was George Washington, who invested so much time and money in the development of improved crops and tillage and other conservation practices on his own farms, and in encouraging his contemporary Colonial landowners to do likewise, that he has been credited by some with having actually operated the Nation's first "experiment station." Thomas Jefferson, Alexander Hamilton, and Patrick Henry were others.

Agricultural societies organized by such leading landholders--as early as the Philadelphia Society for the Promotion of Agriculture in 1785 with Washington an honorary member--filled the gap in disseminating agricultural information in our new Republic until the then most important segment of its economy received Federal government recognition. That came first in the Patent Office, established in 1790, which sent out free seeds and gathered agricultural statistics.

But the needs for more attention to the agricultural phases of its operations had grown to such proportions by the mid-1800's that those administering



it pleaded with Congress to set up a separate bureau to deal with agricultural affairs. It was their pleas that finally resulted in the 1862 act establishing the Department of Agriculture. Isaac Newton, who was head of the Patent Office's agricultural division, became the first "Commissioner." It was not until 1889 that the Department attained cabinet rank with a Secretary, the first of whom was Norman J. Colman, the last "Commissioner" of agriculture.

Somewhat as a 100-year-old couple may look back with fondness and pride on their children and grandchildren, so does the Department of Agriculture have ample reason to take the highest satisfaction in what its "offspring" have done to improve the lot of all Americans--on the land and off. Their interests always have come first; and the Department, during the 10 decades of its existence, has added a broad variety of services to meet their needs.

Earliest among them were the scientific bureaus, including those of animal industry, plant industry, chemistry, forestry, and soils. Farm demonstration and extension education programs early took on important roles in the Department's services to farmers, with the Extension Service authorized by the 1914 Smith-Lever Act.

The importance of human resources has been given top priority by the Department since early days, with young people on the farm one of its primary concerns. The land-grant colleges themselves, of course, were instituted, prophetically, with a view to extending an opportunity for college training to farm and ranch youths comparable to that of town and city youths schooled in special vocations and professions. So were the vocational agricultural classes that came along later at the high school level. And the Department-sponsored 4-H Clubs, through organized projects ranging from raising prize livestock to practicing soil and water conservation, have further contributed to developing better farmers for America.

In the 1930's came the Department's most spectacular expansion of services to help the Nation's farmers and livestock men achieve more efficient and profitable production and better family living in rural areas. By this time, efforts to hold down production of crops in surplus supply had become an added problem demanding the Department's continuing attention, begun with crop and marketing controls through operation of the Agricultural Adjustment Act of 1933.

Soil and water conservation, to preserve our remaining heritage of crop and pasture land, became an important part of the Department's business in the 1930's. Congress enacted the Soil Conservation Act to provide technical and other help in controlling erosion and floods on farms and small watersheds. The Agricultural Adjustment Act was changed to the Soil Conservation and Domestic Allotment Act, and soil conservation aspects of this legislation became its primary objective.

The Department's contributions to better rural areas family living have included rural electrification. This has been responsible for replacing coal-oil lamps on the farm with line power now serving almost all of the Nation's rural families not served by private companies. That is to say nothing of a more recently undertaken companion program that rapidly is bringing telephones to farm families.

Farm credit and financing over the years have opened the way both to more stable farming operations and farm home improvements. Included are loans made to farm and ranch operators who may not be able to arrange private bank financing, for farm purchases, improvement, or equipment, crop production financing, and so on.

Cost-sharing, meanwhile, is another means by which the Department provides substantial financial aid to landowners and operators and others. Such assistance is made available, for example, through the Agricultural Conservation Program for establishing soil conservation practices, under the Watershed Protection and Flood Prevention Act to local communities that develop small watershed projects, and through the Great Plains Conservation Program to landowners and operators for converting hazardous cultivated lands to grass and installing other conservation measures.

So many and varied are the essential services demanded of the Department of Agriculture and the State and local institutions with which it formally cooperates, including soil and water conservation districts, that I can do little more here than list them. They range from plant inspection and quarantines to protecting our food, feed, and fiber from pests and diseases, and meat grading and inspection and testing grain for market.

The Department devotes a most substantial part of its energies in serving the needs of food and fiber processing and marketing interests, and in protecting consumers and improving the quality of meat, poultry, dairy products, vegetables, and other foods they buy. The seed packets of another day have been supplanted by practical, readable bulletins covering everything from how to grow and cook, can, or freeze fruits and vegetables, to those on remodeling farmhouse kitchens or making women's dresses, to calorie charts.

The Department issues crop reports essential to growers, markets, and government bodies in guiding the month-by-month planning of their operations, as it has done for many years, but now on a scale never dreamed of a few years ago; and it regulates futures trading on farm commodity exchanges. Its

economic research has grown into one of the Department's most important functions, with the findings crossing agricultural lines to find essential uses in many segments of the national economy.

The Department's activities also range from management of the national forests for fire prevention and recreation, timber harvesting and other uses, and distributing trees to private landowners under the 1924 Clarke-McNary Act, to helping farmer cooperatives in more efficient handling of farm products moving to the consumers. Special laboratories carry on research to improve wood products for builders and other consumers.

The Department serves our citizens, also, by stepping in with food, feed, or financial aid in communities or other areas struck by flood, drought, or other disaster or those suffering from depressed economy. An important newer undertaking is that of giving technical and other help for improving agriculture and building up small industries in rural areas needing such development. It long has operated an insurance program for farmers to protect them from crop disaster.

Stabilization programs through the years have been adjusted to meet changing conditions. Thus in the early 1930's programs were aimed at reducing production and shifting to a conservation type of program. In the 1940's needs of a world at war directed programs toward increasing production with accompanying programs relating to allocating scarce materials and machinery and campaigns for corn and wheat. In the early 1950's and 1960's the cycle had been completed and programs once more sought a downward adjustment in farm production while helping to move vast quantities of excess products into relief and Food for Peace channels at home and abroad. A new idea entered the agricultural stabilization picture in 1962, that of diverting some croplands into recreational uses.



Finally, we cannot overlook the major responsibilities the Department of Agriculture has in the international field. Foreign trade in farm products truly is big business; and the Department both seeks to promote sale of American farm commodities abroad and to help traders abroad overcome problems that arise. It also provides them with reports and analyses on foreign markets. Likewise, the Department is responsible for the distribution of surplus farm commodities to needy areas in other countries.

The Food for Peace program became a major arm of agriculture's international relations in 1961. Our ability to produce more than the people of the United States can use has proved to be a blessing to more than 100 less fortunate countries that receive food and fiber from us under the Food for Peace program. During 1961, for example, about 45 billion pounds of agricultural commodities went overseas under this program.

A century is a long time; it brings many changes, no less in agriculture in its many ramifications than in industry and other fields. It is indeed gratifying that we move into the Department of Agriculture's second century with so vastly more knowledge and facilities than our forefathers had at their command in the last century. I am sure the observance of this Centennial year throughout the Nation will give us all a better appreciation of these assets that are so vital to our national economy and safety; and I like to think it will stimulate us to redoubled efforts in bringing American agriculture to still undreamed-of heights of service to all the people by 2062!

## QUOTABLES

President Lincoln, speaking of the U. S. Department of Agriculture, said:  
"It will one day realize the fondest anticipations of its most sanguine friends  
and become the fruitful source of advantage of all our people."

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It should be the aim of every young farmer to do not only as well as his father,  
but to do his best to make two blades of grass grow where but one grew before.

--Isaac Newton, first Commissioner  
of Agriculture

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The story of American agriculture is the greatest success story of this  
century.

--Orville L. Freeman, Secretary  
of Agriculture

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No occupation is so delightful to me as the culture of the land. If heaven had  
given me the choice of my position and calling, it would have been on a rich  
spot of earth, well-watered and near a good market for the production of the  
garden. Though I am an old man, I am a young gardener. The plow is to the  
farmer what the wand is to the sorcerer.

--Thomas Jefferson

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The Agricultural Department . . . is precisely the people's Department, in  
which they feel more directly concerned than in any other.

--From President Lincoln's Fourth  
Annual Message to the Congress

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I suspect that one of the best kept secrets in Washington is that the Department  
of Agriculture carries out more activities which are of direct benefit or in-  
direct service to the consumer than any other Department or agency in the  
Federal government.

--From Secretary Freeman's address  
before the New Jersey State Board  
of Agriculture, January 25, 1962

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It may surprise you to know that we (the Department of Agriculture) spend a greater amount from our annual budget for direct consumer services than any Department or agency. In fact, one out of every ten employees in the Department is primarily assigned to protecting or advancing the consumer's interest.

--From Secretary Freeman's address  
before the New Jersey State Board  
of Agriculture, January 25, 1962

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An economically sound agriculture and a rewarding rural life are essential to the national well-being.

--From President Kennedy's Proclamation designating 1962 as the Centennial Year of the U. S. Department of Agriculture

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### AGRICULTURAL MARKETING SERVICE

Agricultural Marketing. --Marketing advances in the last 50 years have matched the miracles of production of food and fiber in the United States. Through marketing research, regulatory programs, and the grading, inspection and market news on farm products, the Agricultural Marketing Service of the U. S. Department of Agriculture is helping to bring greater efficiency, fairness, higher standards of quality, and expanded outlets to the marketing process. It also helps to maintain competitive free enterprise in the marketing of farm-produced commodities.

Marketing of farm products is a major business enterprise. The retail value of these commodities now exceeds \$100 billion a year. And today's supermarket offers more than 7,000 items for the consumer to buy already processed, packaged, and labeled.

The number of workers needed to process and market farm products in the United States is about twice the number engaged in producing these commodities.

Some History of Marketing. --Marketing work in the U. S. Department of Agriculture began early in the 1900's with marketing research in shipping fresh fruit, voluntary grading and inspection of grain, and development of cotton standards. The first marketing agency in the Department of Agriculture was the Office of Markets established May 16, 1913. One of the most significant acts in 50 years of marketing legislation is the Agricultural Marketing Act of 1946, in which the Congress declared its intent to provide for a scientific approach to the marketing of farm products and an integrated administration of

all Federal laws aimed at improving the distribution of farm products by means of marketing research, marketing aids and services, and regulatory activities.

Market Quality Research. --Many fresh foods are now on the market most of the year, thanks to marketing research and quality control methods. The food processing industry and the Agricultural Marketing Service of the U. S. Department of Agriculture have developed techniques which help supply these high-quality foods to consumers at reasonable prices.

Some examples of marketing research results that help reduce costs of marketing and provide better products for consumers include:

- Improved methods for packing and handling apples,
- New type of shipping containers for cantaloups,
- An egg grading and sorting machine,
- Improved shipping containers for tomatoes,
- Better refrigeration for foods shipped cross-country,
- Hydrocooling of peaches and other fresh products, and
- Less expensive methods for handling carrots.

These and other findings by USDA's market researchers are estimated to save millions of dollars a year in handling, processing, shipping, and sorting farm products. Much of this saving is passed on to consumers in the form of lower food prices.

Research to Improve Wholesale Markets. --Marketing research specialists of USDA's Agricultural Marketing Service have helped plan modern wholesale marketing facilities for 60 cities, and half of these facilities have been built or are now under construction. By reducing waste and spoilage and by saving time in handling, these facilities are saving millions of dollars a year for growers, wholesalers, retailers, transportation agencies, and for consumers who benefit through better quality of produce and reduced costs.

Grading of Farm Products. --One of the primary responsibilities of USDA's Agricultural Marketing Service is the grading of agricultural products moving into marketing channels. Grade standards have been established for more than 300 individual commodities.

In the 1961 fiscal year, the Agricultural Marketing Service classed (graded) 96 percent of the cotton crop marketed, and graded all of the tobacco sold at auction markets. It also graded all of the grain moving in interstate or foreign commerce. Through voluntary programs under which the company requesting the grading pays for the service, AMS graded the following percentages of the total products marketed in fiscal 1961: butter 49 percent, fresh fruits and vegetables 85, canned fruits and vegetables 60, frozen fruits



and vegetables 90, beef 49 percent, poultry 46, turkeys 78, shell eggs 19, dried eggs 96 percent, and similar percentages of other products.

Inspection of Poultry. -- While mandatory Federal inspection of meat in interstate commerce has been in effect for more than 50 years, similar inspection of poultry was not required until the Poultry Products Inspection Act became fully effective January 1, 1959. Voluntary inspection of poultry had been in effect since 1927. Mandatory poultry inspection is now furnished to 889 processing plants by the Poultry Division of USDA's Agricultural Marketing Service. The inspection provides for wholesomeness of product, sanitation of plant and processing methods, truthfulness in labeling, and prevention of adulteration. In the 1961 calendar year, the AMS Poultry Division inspected and certified as ready-to-cook nearly 6 billion pounds of poultry.

Market News. -- The Agricultural Marketing Service maintains more than 170 year-round market news offices to furnish daily and weekly reports on prices, supplies, and other market conditions on all of the major farm products. Many of the offices are operated cooperatively with the States. Market information is collected from all of the major trading centers and disseminated through the press associations, newspapers, and radio and television stations. About 1,400 daily newspapers, more than 1,500 radio stations, and nearly 500 television stations carry USDA's market reports regularly. Reports are exchanged among the 170 field market news offices and the Washington offices by teletype over 13,000 miles of leased wires.

Food Distribution. -- One of the many responsibilities of the Agricultural Marketing Service is to help make our abundance of foods available to persons who need them. In the last six months of 1961, USDA food donations to domestic outlets totaled nearly 970 million pounds, a 100 percent increase over the 484 million pounds distributed in the same period of the previous year. The number of needy persons participating in the program increased from 4.1 million in January 1961 to 7 million persons in January 1962. Larger quantities of foods also went to schools and to institutions. The increase in food donations and number of persons receiving foods resulted from President Kennedy's first Executive Order to use more of our Nation's agricultural abundance to improve the diets of school children and needy persons. The foods are made available to the States, which distribute them to counties and cities participating in the direct distribution program.

The Agricultural Marketing Service is experimenting with a Food Stamp Program in eight pilot projects.

School Lunch. -- The National School Lunch Program has become the largest single food service industry in the Nation -- a billion-dollar-a-year operation.

The first school lunches were served to pupils in this country more than 100 years ago, but the program operating today was started in 1946 when

## Agricultural Research Service

Congress passed the National School Lunch Act. The program provides not only financial assistance and donated foods but also national supervision and standards for the lunch service, with State educational agencies carrying the responsibility for administration.

Schools in all 50 States, as well as in Guam, Puerto Rico, and the Virgin Islands, are taking part.

The Agricultural Marketing Service supervises the program nationally and works with State and local school lunch directors to help them with management problems and assist them in meeting the nutritional requirements.

The Special Milk Program also is directed by the Agricultural Marketing Service, providing funds to help supply milk to schools, summer camps and other child-care institutions. The School Lunch and Special Milk programs account for about 5 percent of the Nation's non-farm consumption of milk.

Regulatory Programs. -- The Agricultural Marketing Service administers a number of regulatory acts which help protect farmers, consumers, and traders against unfair trading practices. As one example, the Packers and Stockyards Act, a Federal statute designed to promote fair play in the industry, requires posting of stockyards and licensing of dealers and market agencies engaged in the marketing of livestock and poultry in interstate commerce. Other regulatory acts administered by AMS include the Perishable Agricultural Commodities Act, which establishes a code of good business conduct for the produce industry; Federal Seed Act; U. S. Warehouse Act; and Produce Agency Act.

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## AGRICULTURAL RESEARCH SERVICE

New Ways to Bottle Bugs. -- Some remarkable schemes for doing away with insect pests are being devised by scientists of the Agricultural Research Service. They've already used radioactive sterilization successfully against the screwworm fly--a serious pest of livestock. Now, they're considering the possibility of breeding inferior strains of insects that will pass on to their offspring some fatal defect. Another idea is the release of diseased insects that would infect and kill their own kind. And the scientists are also combing the world for insects that feed on other insects--a kind of TV western plot, where we bring in the posse of good bugs to clean up the bad bugs.

Water Problems Part of ARS Research Program. -- Water has become one of our major national concerns. Many of our streams and lakes are polluted; much of the country suffers periodically from droughts and floods; some of our major cities limp along on water shortages; and our growing population adds daily to the demands for water. Scientists of the Agricultural Research Service are conducting research aimed at finding better ways of storing and saving water, better ways of getting it from one place to another, and better ways of using it.

Light Discovery Key to Plant Growth. --Late in 1959, a team of scientists of the Agricultural Research Service pulled off one of the great scientific breakthroughs of the century, by isolating the substance in plants that starts them growing, determines how they'll grow, and keeps them growing. The magic ingredient is a light-sensitive pigment--a protein, common to all plants. The scientists named the protein "phytochrome." They believe that the isolation of phytochrome may well be the first step toward complete control of plant growth--allowing man to alter plants to suit whatever ends he wishes.

Growth-Regulating Chemicals Find Wide Use. --Much that is now known about plant growth-regulating chemicals has been given to the world by Agricultural Research Service scientists. They carried forward development research that led to wide use of effective weed killers such as 2,4-D, fruit-thinning sprays, and the amazing gibberellins that make short plants tall. They have dug deeply into chemical-plant relationships to show how chemicals do their work--how one herbicide, for example, attacks grassy weeds by inducing a vitamin deficiency; how another will control weeds in corn without harming the crop because of an enzyme present in the corn.

Hybrid Corn Pays Its Way And More. --Hybrid corn is undoubtedly the food-production story of the century. It began almost 100 years ago with Gregor Mendel, an Austrian monk, who observed the effects of cross-pollinating garden peas. But it wasn't until after 1900 that scientists began to cross inbred lines of corn to produce hybrids. In 1925, 12 States joined with the U. S. Department of Agriculture in a cooperative hybrid-corn breeding program, to help speed up progress. From this joint effort, came the phenomenal spread of hybrid corn. Today, hybrid corn provides an extra half billion dollars more income each year to farmers. So hybrid corn alone has paid several times over for all the research ever done by the Department of Agriculture.

Wash-Wear Aids Cotton Consumption. --Wash-and-wear cottons, which revolutionized consumers' clothes-buying habits, are continually being improved by Agricultural Research Service scientists, who did most of the original development work. Cotton consumption last year was 1.2 million bales higher than it would have been if wash-and-wear had not been developed.

Meat Inspection Covers Almost 1,500 Plants. --The oldest food law now administered by the U. S. Department of Agriculture is the Meat Inspection Act of 1906. It is a model law, which has served as the blueprint for legislation in a number of States as well as in foreign countries. Today, there are more than 3,000 veterinarians and trained meat inspectors stationed in almost 1,500 meat-packing plants throughout the country. Each working day, these Agricultural Research Service inspectors keep 1 million pounds of unwholesome meat from U. S. trade channels.



Aerosols Hit 1 Billion. --The development of the aerosol "bomb" by scientists of the Agricultural Research Service provided millions of Allied servicemen in World War II with the means of controlling disease-carrying pests. After the war, the aerosol went on to become a billion-dollar industry and the dispenser of over 300 different kinds of products. Last year, American consumers bought almost 1 billion aerosols to conveniently spray, squirt, mist, foam, or otherwise apply such preparations as hair lacquer, paint, deodorants, window cleaners, shaving cream, deicers, and . . . insecticides.

Scientists Redesign Poultry and Livestock. --Over the years, scientists of the Agricultural Research Service have had a big hand in redesigning our livestock and poultry. There's the famous Beltsville turkey, a small-size bird that helped popularize turkey as everyday fare. There's the meat-type hog, which produces more lean and marketable meat. There are hybrid lambs, which gain faster, grow larger, and produce more and better wool. There are feedlot fattened cattle whose juicy beef cuts today are a far cry from the stringy range beef of the past. And there are hens that average about 210 eggs a year--twice what production was a hundred years ago.

ARS Scientist Foresees Mastery Over Living Cell. --Dr. Byron T. Shaw, Administrator of the Agricultural Research Service, predicts that progress in the biological sciences may well give man the power to manipulate living cells--the basis of all life. According to Dr. Shaw, mastery over biological behavior will bring genetic improvement in animal and plant populations far exceeding anything now possible.

Pesticide Laws Cover More Than 50,000 Products. --Until the Insecticide Act of 1910, sponsored by USDA, the public had no Federal protection against fraudulent, ineffective, and unsafe chemicals used against crop, animal, household, and human pests. Protection was broadened further as new chemicals came into use against a widening range of pests. The ARS-administered Federal Insecticide, Fungicide, and Rodenticide Act now requires registration, testing, and proper labeling of more than 50,000 interstate-shipped or imported products for household, institutional, and structural as well as agricultural pest control.

Control Efforts Eliminate Five Plant Pests. --The first organized efforts to control plant pests were made in the U. S. in 1877, when Congress appointed a commission to study grasshopper and other serious insect problems. Since that time, several plant pests have been eradicated from this country: parlatoria date scale, citrus blackfly, citrus canker, Mediterranean fruit fly, and Hall scale. Outlook is good for eradication of others, such as the khapra beetle, witchweed, and golden nematode. Other ARS-State programs have for years prevented widespread economic damage by such pests as the pink bollworm, Mexican fruitfly, gypsy moth, white-fringed beetle, and Japanese beetle.



Plant Pest Caught Every 20 Minutes. --Agricultural Research Service plant quarantine inspectors--stationed at border stations and ports-of-entry--intercept a plant pest every 20 minutes.

Micro-Organisms Supplied to World From Famed Collection. --Scientists are learning more each year about bacteria and fungi and the strange world of micro-organisms. One of the world's largest collections of micro-organisms is kept by the Agricultural Research Service at its Peoria, Ill., laboratory. Here, bacteria and other cultures are specially processed so they stay usable for many years, and samples can be supplied to scientists working in all parts of the world. The laboratory's collection has had some famous inhabitants--among them the mold that produced penicillin on a large scale, and the bacteria that produced dextran, a life-saving blood plasma extender.

ARS Food Plans Help Young And Old to Better Diets. --A hundred years ago, people knew in a general way that what they ate influenced how they felt, but there was little scientific evidence to help them know how much of which foods to eat and why. Today, food plans developed by nutritionists of the Agricultural Research Service provide guidance on good diets for every family member--young and old--and to fit nearly any family income. Such nutritional diseases as scurvy, pellagra, beriberi, and rickets were commonplace in 1862, when the USDA came into being. Now, these diseases are practically nonexistent in the U.S.

Food Composition Tables Cover 2,500 Food Items. --In 1896, USDA issued its now famous Bulletin 28, "Composition of American Food Materials." Chemist W. O. Atwater was the author. The bulletin contained percentages of protein, fat, carbohydrate, ash, and water from 2,572 analyses of foods--basic information for computing diets. The latest food composition data produced by the Agricultural Research Service cover more than 2,500 food items and 40,000 values in minerals, vitamins, and total calories--as well as protein, fat and carbohydrate.

Ag. Engineers Bring Automation to the Farm. --Since 1890, when agricultural engineering research became an official part of USDA's responsibilities, engineers have had a hand in the development of the most productive and efficient agriculture in the world. Advances have meant more efficient production and less labor for farmers. Pushbutton farming is still more the exception than the rule--but more automation is on the way. In Illinois, for example, ARS-State agricultural engineers designed an automatic system to house and feed 43,000 turkeys and broilers a year on one farm.

Cattle Fever Discovery Helps Conquer Malaria, Other Human Diseases. --In 1892, scientists of the U. S. Department of Agriculture announced the momentous discovery that infection can be carried from one animal to another

## Agricultural Stabilization and Conservation Service

through the agency of an intermediate host. The case in point was a tick, carrier of cattle fever. It cost \$65,000 to support the research that led to this finding. Today, because of this research, farmers save at least \$60 million a year. But even more important, the discovery unlocked the mysteries of such human diseases as malaria, yellow fever, typhus, bubonic plague, and Rocky Mountain spotted fever.

ARS Scientists Help Cut K. P. Time. --Out of the kitchen and into the processing plant has gone much of the peeling, slicing, squeezing, boiling, baking, and frying connected with food preparation, thanks in part to research by scientists of the Agricultural Research Service. Frozen concentrated orange juice is one of their outstanding successes. It was developed in 1943, in cooperation with the Florida Citrus Commission. Last year, consumers spent more than \$250,000,000 on frozen citrus juice concentrates, more than twice the farm value of the entire citrus crop 25 years ago.

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## AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Farm Action Programs Strengthen Economy. --During the last third of the U. S. Department of Agriculture's first 100 years, Governmental assistance to farmers took the principal form of "farm action" programs--mostly operated under the supervision of the Agricultural Stabilization and Conservation Service and its predecessor agencies -- in which growers on individual farms of the Nation cooperated in working toward national agricultural objectives. Generally, the programs have been authorized by Congress in response to the need for strengthening the national economy by improving the farmer's economic status.

Need For Crop Production Adjustment. --One of the major problems currently confronting farmers is the continuing need to adjust the production of several important farm crops. This is being tackled by the Department of Agriculture in 1962 through ASCS's feed grain and wheat stabilization programs, fashioned along the general lines of the successful 1961 feed grain program. Authorized by special legislation late in the spring of 1961 to meet a serious emergency posed by excess stocks, the 1961 program successfully met its objectives of (1) increased farm income -- up by \$1 billion, or 9 percent, partly because of the feed grain program; (2) fair and stable prices for consumers of meat, poultry, and dairy products; (3) lower costs to taxpayers--resulting from savings of storage, handling, and transportation fees which will not have to be paid out because Government stocks are going down instead of up; and (4) reduced Government grain stocks -- the first reduction in surplus feed grain stocks since 1952.



Principal ASCS Activities. --The Agricultural Stabilization and Conservation Service (ASCS) is the agency of the U. S. Department of Agriculture which carries out action programs in the general fields of production adjustment, conservation cost-sharing, and price and market stabilization. Principal ASCS activities include (1) price support, carried out through commodity loans to farmers or direct purchases of agricultural commodities from farmers and processors; (2) production adjustment, carried out through marketing quotas, acreage allotments, and/or stabilization payments for a number of commodities in which the Nation is more than self-sufficient (cotton, tobacco, rice, peanuts, wheat, corn and other feed grains), and through conditional or incentive payments for two commodities in which the Nation is not self-sufficient (sugar and wool); (3) conservation assistance, carried out through sharing with individual farmers the cost of installing needed soil-, water-, woodland- and wildlife-conserving practices under the Agricultural Conservation Program; (4) management of the inventories of the Commodity Credit Corporation through sales, export payments-in-kind, donations, storage, and related processing and shipping arrangements; (5) market stabilization, on a self-help basis, through marketing agreements and orders; and (6) emergency disaster relief, through direct assistance to farmers and ranchers whose feed supplies have been destroyed or whose farmlands have been seriously damaged by widespread flood or drought.

To Help Meet Nation's Requirements. --During this 100th year of USDA, ASCS continues to meet one of the agency's original objectives of helping farmers tailor their crop output to fit the Nation's requirements through production-adjustment programs--both for crops in which the nation is more than self-sufficient and for commodities in which the Nation is not self-sufficient. The former include acreage allotments and marketing quotas for five basic crops -- wheat, cotton, peanuts, rice, and tobacco; the feed grain program for corn, grain sorghum, and barley; and the wheat stabilization program. The latter include the wool program -- which encourages increased production of wool as a measure for our national security and in promotion of the general welfare -- and the sugar program -- which seeks to maintain a healthy and competitive domestic sugar industry of limited size, to assure adequate sugar supplies for consumers at reasonable prices, and to promote general export trade.

ACP Shares Conservation Costs. --The Agricultural Conservation Program of ASCS provides cost-share assistance to farmers for carrying out on individual farms and ranches such conservation practices as establishing and improving vegetative cover of grasses, legumes, or trees for soil protection, installing erosion control structures, practices especially beneficial to wildlife, and practices for the conservation or more efficient use of water. For 1962, ACP is especially encouraging soil- and water-conservation practices which are of primary benefit to wildlife. Both financial and technical assistance is available to farmers for developing or restoring shallow water areas for wildlife, for constructing ponds and dams for wildlife, and for establishing cover and food plots, and for other practices that will enhance wildlife.

## Agricultural Stabilization and Conservation Service

Three Objectives. --Programs of the Agricultural Stabilization and Conservation Service (ASCS) are directed toward helping farmers (1) to adjust their farm production -- either upward or downward -- to levels adequate for all foreseeable national needs, (2) to conserve and improve the soil, water, and wildlife resources of the Nation's farm and ranch lands, and (3) to increase farm income to a level more equitable with that of other economic groups of the Nation, giving full consideration to the maintenance of prices which will also be fair to consumers generally.

Adjustments Geared to Current Needs. --ASCS programs through the years have provided farmers with a means of adjusting their farming operations to meet the changing requirements of a Nation on the march. In the early 1930's, this meant cutting down the production of unneeded quantities of farm commodities, it meant undertaking the mass movement of livestock -- during two severe and widespread droughts -- from drought-seared areas to greener pastures or earlier marketing, it meant shifting to a conservation type of program lest all the past gains be nullified by an unfavorable court action. In the forties, the farm-action programs were directed toward increasing production of the products needed in prosecuting the war according to huge "production goals" -- with accompanying programs for allocating scarce farm machinery and other supplies and materials, toward a "campaign for corn" to fulfill wartime requirements, toward a famine emergency drive for wheat to feed starving millions in war-torn countries all over the world. And in the fifties and early sixties, the cycle has been completed and the programs once more seek a downward adjustment in farm production to levels commensurate with national requirements, while helping to move vast quantities of farm commodities into relief and Food for Peace channels at home and abroad.

The Farmer-Committee System. --Since programs of the ASCS require direct dealing with farmers, a key feature has always been local administration of the programs through the farmer-committee system. At county and community levels, Agricultural Stabilization and Conservation (ASC) farmer-committees are elected by their neighbors -- as directed by legislation -- to administer the farm-action programs. State farmer-committees, serving as representatives of both farmers and Government, are appointed by the Secretary of Agriculture. This method of administration helps insure that the various programs will be practical, effective, and representative of farmers' own needs and desires.

Committee System Effective. --Through the years, ASCS's farmer-committee system of program administration has proved outstandingly effective in obtaining the cooperation of farmers for accomplishing difficult and emergency jobs. One example was the "corn-for-war" program conducted in the spring of 1944 at the request of the War Department and the War Production Board. Emergency set-aside orders had failed to obtain sufficient corn to keep war-essential corn refineries operating--processing corn for materials vital to the prosecution of the war such as explosives, core-binders for casting metals for warplane engines and machinery, waterproof coatings, fiberboard containers,



penicillin and sulfa drugs, sirups for K-rations, butyl alcohol for rubber to go into gasoline tanks for airplanes, and scores of others. When the Commodity Credit Corporation, under a War Food Administration order, was made the sole buyer of corn for 60 days in 125 heavy corn-producing counties of the Midwest, a vigorous corn drive was conducted by farmer-committeemen through a farm-to-farm canvass. About 72 million bushels of corn were delivered or placed under contract during the campaign -- enough to carry processors through until the new crop became available.

Nation's Stake in Conservation Large. --Through ASCS's Agricultural Conservation Program, the Government each year shares with more than a million farmers and ranchers the cost of soil, water, woodland, and wildlife conservation practices on individual farms and ranches throughout the Nation. Funds are authorized by Congress for this purpose in recognition of the fact that these resources are vital not only to the farmers and ranchers who operate the land but also to the health and well-being of each citizen, both now and in the future. This assistance is viewed as an investment in the public interest to help insure the wise use and adequate protection of the Nation's farmlands.

Conservation Costs Shared With A Million Farmers. --Under the Agricultural Conservation Program -- one of the programs of the Agricultural Stabilization and Conservation Service -- 1,055,872 farmers on 1,029,279 participating farms received assistance amounting to \$213,488,410 for carrying out conservation practices in 1960, the latest year for which complete figures are available. This included emergency conservation measures authorized to meet new conservation problems caused by floods and other natural disasters. Since farmers match the public contribution, the total conservation investment through the 1960 ACP was more than \$400 million. Farms participating in the 1960 program included 391,543,571 acres of farmland, of which 152,268,980 acres were cropland and 178,041,510 acres were noncrop open pasture and range.

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## COOPERATIVE STATE EXPERIMENT STATION SERVICE

Origin of the Service. --The Cooperative State Experiment Station Service was established under its present name on August 30, 1961. Previously, it has been known as the Office of Experiment Stations from 1888 to 1955, and as the State Experiment Stations Division, Agricultural Research Service, from 1955 to 1961.

Partnership in Research. --The Cooperative State Experiment Station Service represents USDA in its partnership with the nationwide program of agricultural experiment station research. It administers Federal grants paid

## Economic Research Service

annually to State agricultural experiment stations, which are among the oldest Federal grants for scientific research. All fields of scientific research relating to agriculture are represented on its technical staff.

Cooperation Since 1887. -- The oldest continuous link between USDA and the land-grant colleges and universities is the partnership established between State and Federal scientists engaged in agricultural research. The Hatch Experiment Station Act of 1887 provided for the annual appropriation of Federal grants to departments of the colleges known as agricultural experiment stations. USDA administers these funds through its Cooperative State Experiment Station Service.

Abstract Service Provided States. -- USDA's Cooperative State Experiment Station Service has developed a system of documenting current Federal-grant research at experiment stations under which abstracts are sent to each station. This enables scientists there to make quick reference to research in their respective fields of study.

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## ECONOMIC RESEARCH SERVICE

Farm Economics Work Traces 'Way Back. -- Agricultural economics research traces back to early farm management work and has been conducted in various units of the U. S. Department of Agriculture since 1905. The Economic Research Service, the agency now responsible for this work, was established in 1961. ERS conducts programs of research in agricultural economics and marketing, both domestic and in foreign commerce.

Ag Economists Do Many Jobs. -- The jobs done by agricultural economists in the U. S. Department of Agriculture's Economic Research Service fall into four main categories. (1) They do research on farm production problems, land and water resources problems, farm financial problems, and rural development. (2) They study agriculture's position in the national economy. (3) They study the marketing of farm products from the time they leave the farm until they reach the consumer. (4) They analyze and interpret agricultural conditions and developments that affect foreign markets for United States farm products.

Users of Economic Information. -- Farmers and many others use information from USDA's Economic Research Service to help adjust to economic forces affecting prices, supply, and consumption of farm products and to understand conditions affecting farm people or the agricultural economy. Agricultural industries use the information to improve the merchandising of their products. Through its publications, ERS provides information and assistance to exporters

of agricultural commodities. Government--State and Federal--also uses much information published by ERS.

Production Potential Going Skyward. --How well will we Americans be eating in 1980 when the population is expected to reach 260 million people? We have in the U. S. Department of Agriculture an agency--the Economic Research Service--that works on just such questions. Economists say that the productivity of American agriculture is moving ahead faster than the population is increasing. By 1980, the average person will have even more food available than today, and there will be even more farm products available to ship to other countries. And this would all come from about 50 million fewer acres than farmers are operating at present.

Food is a Bargain. --Food is a bargain. How do we know? The U. S. Department of Agriculture's Economic Research Service says that while farm food prices have gone up about 13 percent in the last dozen years, they have risen much less than incomes and much less than prices of most other things. Only a few years ago, Americans had to spend 25 percent of their income for food. Now they spend only about 20 percent of their income for food and they get more of it, of higher quality, and with more fixings and trimmings.

Measuring Farm Efficiency. --Almost everyone knows that today's farmers are more efficient than their great grandfathers. The U. S. Department of Agriculture's Economic Research Service provides us with several ways of measuring this efficiency. One way is to calculate the number of people one farm worker can supply with farm products. In 1820, he supplied the needs of a little over 4 people, including himself. By 1862, it was 4.5 people; by 1900--7 people; by 1950--15 people; and today he provides for 27 people at home and abroad. Measured in this way, today's farmer is almost twice as efficient as he was just 10 years ago, and about 6 times as efficient as the farmer a century ago.

Farming Is Big Business. --The Nation's farmers realize something like \$40 billion a year from farming, without taking into account money they make from jobs off the farm, according to the U. S. Department of Agriculture's Economic Research Service. Farmers spend more than \$27 billion on things they need in farming--tractors, tires, gasoline, fertilizers, chemicals, feed, seed, hired labor and so on. Farm families spend another \$15 billion on their living expenses--and they buy about the same things for their tables and their homes that city people buy, including more than half their food. All this makes jobs for people in cities and towns.

Measuring the Hunger of the World. --One of the most unique studies to come out of the U. S. Department of Agriculture's Economic Research Service in recent months is The World Food Budget. What did it tell about the food



situation in countries of the world? One-third adequately fed, two-thirds underfed. Some are short of protein, some are short of energy foods, some are short of fats, some are short of all the principal nutritional elements. Unless some major changes take place, the food situation in these countries will get worse because the population is increasing faster than the food supply. The most serious shortages of food per person are in China and neighboring countries. In many tropical countries, in Africa and the Americas, there is a shortage of protein, such as meats, dry beans and peas.

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## FARMER COOPERATIVE SERVICE

Business of Farmer Cooperatives Increasing. --USDA, through its Farmer Cooperative Service and predecessor agencies, has helped farmers make their marketing, purchasing, and service cooperatives more efficient businesses. The FCS staff assists with problems of organization, financing, management, merchandising, product quality, and other phases of business operation. In 1917, USDA recorded some 5,000 farmer cooperatives with about 662,000 memberships and a dollar volume of business approaching \$626 million. In fiscal 1959-60, the latest year for which figures were available, FCS records show slightly over 9,000 cooperatives with more than 7-1/4 million memberships and a total gross business of over \$15.6 billion, before adjusting for intercooperative business. In addition, in 1960 there were some 12,000 service cooperatives providing fire insurance, credit, water for irrigation purposes, and electricity.

FCS Data on Co-ops Date Back to 1913. --Collection of statistical data on farmer cooperatives, which began in 1913, has developed into the comprehensive annual report presently made by the FCS History and Statistics Branch. This survey, covering marketing, farm supply, and related service cooperatives, is valuable to farmer cooperatives, national farm organizations, educational institutions, other Government agencies, and foreign research workers as a source of basic information on U. S. farmer cooperative business and memberships.

FCS Helps Turkey Co-op. --Based on recommendations resulting from a survey made in 1929 by a present staff member of Farmer Cooperative Service, the largest wholesale handler of turkeys in the world--a U. S. farmer cooperative -- was established. Norbest Turkey Growers Association, with headquarters at Salt Lake City, Utah, a federation of 11 member associations extending from the Pacific Coast to Minnesota to Texas, has handled as high as 150 million pounds of turkey in a single year. It was the first commercial handler to adopt U.S. grades and standards for turkeys. It has been a leader in introducing new turkey packs and products.



Farm Supply Cooperatives Among Earliest. --Various USDA agencies have been offering research and educational assistance to farmer cooperatives since the early 1900's. Their records show that farmers around Riverhead, N. Y. , organized a cooperative to purchase fertilizer on Christmas night in 1863. It operated continuously for 90 years. Today over 7,000 cooperatives provide farmers with feed, seed, fertilizer, petroleum products, and related supply items. Farmer Cooperative Service studies show that farmers, through these associations, realize an annual saving of from \$100 to \$150 million annually.

USDA Employees Help Get Citrus to Market in Good Condition. --As early as 1907, members of the USDA staff, trying to help California growers, through their marketing cooperative, to get their citrus to Eastern markets in good condition, rode the trains reading thermometers in the refrigerator cars at intervals to be sure the temperature was right for the citrus on its long trek east.

Grain and Oilseeds Co-ops Cooperate. --Background material supplied by FCS to managers of regional grain cooperatives was the basis for 19 (now 22) of these associations forming Producers Export Company, which for the first time has given U. S. grain farmers a voice in world markets. Cottonseed and soybean oil processors, normally competitors in product markets, are now working together with FCS staff members' help, to form a cotton marketing agency to handle their products in both domestic and foreign markets.

FCS Helps Foreign Cooperatives. --In addition to helping U. S. farmer cooperatives increase their business efficiency, Farmer Cooperative Service of the U. S. Department of Agriculture also offers information on agricultural cooperation to some 600 foreign trainees each year and gives personal service and publications that contain results of FCS research to the Peace Corps and the Agency for International Development for use in their overseas programs.

FCS Offers Varied Help. --Farmer Cooperative Service of the U. S. Department of Agriculture was established specifically to assist the Nation's farmer cooperatives. Its staff has headquarters in Washington. Staff members make research studies and publish their findings. FCS now has several hundred publications dealing with every phase of cooperation organization and operation. Since 1934, the Service and its predecessor agencies have published a monthly magazine, "News for Farmer Cooperatives," which keeps current information flowing to cooperative leaders. The FCS staff answers thousands of inquiries each year from cooperatives and others who ask about cooperative organization and operation. They give specific helps to individual cooperatives on their most pressing current problems, and they assist in workshops and clinics for directors, employees, and members.

## Farmer Cooperative Service

FCS Research Widely Used. --Research sponsored by FCS staff members is often useful to business other than farmer cooperatives. Studies on business management and management accounting for small processing firms provide tools by which managers can improve their decision-making skill, regardless of the form of organization in which they are working. Two such studies issued by the Frozen Food Locker Branch have been widely used by all kinds of small business firms. This Branch compiles national economic information on the frozen food locker and freezer provisioning industry. It makes broad studies of merchandising practices and processing methods that are useful to the entire industry.

FCS Livestock Loss and Damage Studies. --FCS is making a continuing study on loss and damage to livestock through handling and transportation during marketing and processing. More than \$50 million is lost each year from crippling, death, condemnation, and bruise injury during movement to market. Reports reaching FCS from various industry sources tell of material savings achieved through adopting findings of this loss and damage research. A major national plant reported a reduction of 75 percent in bruise loss on cattle alone!

FCS Established To Help Farmers. --USDA's Farm Cooperative Service was established to help farmer cooperatives improve their business operations and thus save money for their members. A cooperative owned and controlled by its farmer members is the present-day U. S. farmer's best method of achieving bargaining strength in the marketplace -- hence his best means of improving his economic situation. A well-known agricultural leader has told how in the early 1900's he shipped a carload of nuts from California to the East Coast only to receive a gross return that wouldn't even pay the freight charges on the shipment. Later in the 1900's California nut growers formed two cooperatives that have grown and prospered. Today millions of consumers in the East purchase California nuts that are sold in our stores at a price the consumer can pay, and so the farmer can get enough to meet his expenses of production and give him a legitimate profit.

Farm Production Supplies. --One of the earliest forms of cooperative business efforts of farmers was buying farm supplies. They first pooled orders for carlot shipments; then set up local operating facilities with full-time managers. Later they formed wholesale associations which eventually began manufacturing feeds, fertilizers, and the like. The USDA's first economic research on cooperative purchasing dealt with farmers obtaining supplies through cooperative stores in 1913. This work continued through the Federal Farm Board and the Cooperative Research and Service Division of Farm Credit Administration; and since 1953 under the Farmer Cooperative Service of USDA.

Farmers purchased \$2.4 billion worth of supplies through their cooperatives in 1959-60. This represented from 18 to 22 percent of their needs for feed, seed, fertilizer, pesticides, and petroleum, and for 7 percent of their remaining supply and equipment needs.



Research and Service Activities With Farm Supply Cooperatives. --The Farmer Cooperative Service assists farmers in buying over \$2.4 billion worth of farm production supplies each year through 7,200 cooperatives they own. Examples of research FCS conducts are: How to reduce costs of milling and delivering feed, delivering petroleum, and spreading fertilizer and lime. Another type covers policies for credit control and inventory management, and essentials for successfully operating farm supply cooperatives. Examples of service work include help in merging two associations, suggestions on improving efficiency of warehouses, and an analysis of the organizational structure and operations of an individual cooperative.

Reducing Farm Costs. --Farmers now spend about 45 percent of their gross income for production supplies and equipment. In buying these needs, they obtain a fifth of their feed, seed, fertilizer, and petroleum needs through 7,200 cooperatives they own and operate. They realize annual net savings of close to \$150 million--equal to about 6 percent on each dollar of purchases. Farm supply cooperatives help farmers through integrated operations--retailing, wholesaling, manufacturing, and transporting. They also help by providing the kind and quality of supplies their farmer-members need, and the type of services they desire. Farmer Cooperative Service is set up to conduct research on the various organizational and operating problems farmers and their cooperatives encounter. And it helps get results of research into use by working with individual associations and conducting educational work with groups of cooperatives.

Work with Rural Areas Development Communities. --Farmers cooperatives can make important contributions to the Rural Areas Development program in USDA. Farmer Cooperative Service prepared a kit of publications that provide basic information on the organization and operation of cooperatives. This kit has gone to State and county leaders in the RAD program. Recognizing the increased interest in credit unions as a supplementary source of credit as well as a place to save, FCS is studying the operations of these organizations in rural development-type counties to provide basic materials on criteria for the success of credit unions in such areas.

Marketing Cooperatives Important. --Through marketing cooperatives, farmers seek to increase their net income, improve their bargaining position, obtain needed services at cost, and improve prices and quality.

Marketing cooperatives are important in the U. S. business picture. Some portion of almost every agricultural product produced in this country is handled at some point in the marketing channel by these farmer owned and controlled organizations. The latest annual survey of farmer cooperatives issued by Farmer Cooperative Service shows a net marketing volume of \$9.3 billion or 77.4 percent of the total cooperative business.

FARMERS HOME ADMINISTRATION

Farmers Home Administration Defined. --This agency provides agricultural loans to deserving farm families who are unable to obtain needed credit from conventional private and cooperative lenders. Loans are also available to residents in small rural communities to improve housing and to obtain water. Credit is furnished at reasonable rates and terms and each loan is accompanied by technical farm and money management advice.

Farmers Home Administration is a direct-line organization composed of a national office staff in Washington, D. C., 43 State offices, and approximately 1,500 county offices serving the 50 States and Puerto Rico. Applications for credit and outstanding loans are serviced in the county offices.

History of FHA Credit Programs. --During the past quarter of a century approximately 2 million farm families have borrowed \$5.5 billion dollars from the Farmers Home Administration and its predecessor agencies to equip, operate, and buy farms. Repayments to date total \$4 billion. Most of the amount outstanding has not fallen due. Losses on principal have been considerably less than the interest collected. All of these farm families, at the time they borrowed from the Federal lending agencies, were unable to obtain the funds they needed from other credit sources.

Credit Contributes to Rural Areas Development. --The Farmers Home Administration is an important tool in the U. S. Department of Agriculture's rural areas development program. Loans to individual farm families help them acquire the resources and skills they need to improve their operations, raise their standards of living, increase their incomes, and participate in new agricultural enterprises. This assistance in turn stimulates business activity in neighboring towns and in general helps farm families and communities of which they are a part make an important contribution to the strength of the national economy. Loans to local groups and organizations enable communities to obtain sanitary water for household, livestock and business use and assist in the development of flood, erosion, and sedimentation control projects. Communities with adequate water supplies possess an important asset for attracting industries and otherwise assist it in strengthening its economy and providing a more favorable and healthful environment for its families. Flood water properly controlled through watershed projects offers opportunities for developing recreation and fish and wildlife resources in the area.

As part of the Department's rural areas development program, Farmers Home Administration provides the leadership at the State, area, and county level for the organization and operation of technical assistance panels representing all USDA agencies.

FHA Relationships to Other Lenders. --Loans from the Farmers Home Administration are made when adequate credit is not available from other sources. Borrowers agree to repay their loans and obtain their credit from other lenders when they reach or regain a position where they can do so. Every year thousands of farmers graduate to other lenders. In fiscal 1961, approximately 183,000 farmers were using Farmers Home Administration supervised credit. During the year more than 24,500 farmers in the group paid their loans in full, and were able to turn to other sources of credit.



Who Gets FHA Help. --Farmers Home Administration has been one of the factors behind the survival of the family farm and its strengthened position as one of the foundation stones of the national economy. Four main groups of family farmers turn to the agency for assistance in developing programs and plans to meet their needs. First, there are the small farmers who need a bigger base to build on. Second, there are the young farmers who must overcome fantastic barriers to enter the field of agriculture on a sound and secure basis. Third, there are the established farmers who must make large scale adjustments to keep up with the changing times. Fourth, there are the farmers and ranchers who face crisis because frosts, excessive rainfall, and other disasters have struck a crippling blow at their means of production. Without Farmers Home Administration assistance, many of these families would have been forced to sell out and the younger farmers would have been unable to get started in their chosen occupation.

Farmers Are Good Credit Risks. --The Farmers Home Administration has proved that farmers, even those with low equities, are excellent credit risks. A recent review of the repayment on the agency's loans shows that of \$3,925,000,000 loaned thus far in current programs to help farmers obtain decent homes, carry out needed soil and water conservation practices, buy and develop farms, finance farm adjustments, and meet emergency credit needs when hit by drought and other natural disasters, only 7/10 of one percent has been written off and interest collections of \$384,300,000 amount to 14 times these losses. The losses have been far more than offset by the rise in the standard of living of the successful families, by the increase in their productive capacity, by the greater contribution they have been able to make as taxpaying supporters of schools, roads, other community facilities, and by the economic vigor they have pumped into their rural communities and into our general economy.

Supervision Accompanies Each Loan. --Farmers Home Administration loans to farm families are accompanied by advice in sound farm and home management to help borrowers make profitable use of their land, labor, capital, and other resources that will be available to them. The county supervisor furnishes advice and assistance in keeping accurate records of expenses and income and in budgeting and otherwise making wise use of income and credit. He also provides on-the-farm assistance with farm and money management problems during the first few years of the loan.

FHA Administers Six Types of Loans. --1. Operating loans are made to eligible operators of farms, not larger than family farms, to assist them in making improved use of their land and labor resources and make adjustments necessary for successful farming. Funds may be advanced to pay for equipment, livestock, feed, seed, fertilizer, and for other farm and home operating needs and to refinance chattel debts. Each loan is scheduled for repayment in accordance with the borrower's ability to repay, over a period not exceeding 7 years with a possible additional renewal period of 5 years. The interest rate is 5 percent. A borrower's total principal indebtedness for operating loans may not exceed \$35,000.

2. Farm ownership loans are made to eligible farmers to enlarge, develop, and buy farms not larger than family farms, and to refinance debts. Funds may be advanced to buy or enlarge farms, to construct, improve, or repair farm homes, and farm service buildings, and to drill wells and otherwise improve water supply systems for home use, livestock, and irrigation. In addition, loans are made to develop and improve farm land -- clear and level land, provide drainage systems, carry out basic land treatment practices, and make other improvements. Each loan is scheduled for repayment in accordance with the borrower's ability to repay, over a period not exceeding 40 years. The interest rate is 5 percent. A borrower's total principal indebtedness on the farm at the time the loan is made may not exceed \$60,000 or the normal value of the security, whichever is less.

3. Water development and soil conservation loans are made to eligible individual farmers and to groups of farmers and rural residents to develop water supply systems for irrigation, household and livestock use, to drain farm land and to carry out soil conservation measures. Each loan is scheduled for repayment in accordance with the borrower's ability to repay, over a period not exceeding 40 years. The interest rate varies between 4 1/2 and 5 percent depending on the type of loan. In the case of individual loans, a borrower's total indebtedness on the farm at the time the loan is made may not exceed \$60,000 or the normal value of the security, whichever is less. An association's total indebtedness cannot exceed \$500,000 when the loan is made from appropriated funds and \$1,000,000 when made from insured funds.

4. Rural housing loans are made to eligible farm owners and owners of nonfarm tracts in rural areas and small rural communities with populations of not more than 2,500. Funds may be advanced to construct, improve, or repair rural homes and related facilities, or farm service buildings, or fallout shelters, or to provide water for farmstead and household use. In addition to major construction, funds are available to modernize homes -- add bathrooms, central heating, modern kitchens, and other home improvements, as well as to enlarge or remodel farm service buildings and put in related facilities such as paved feedlots, yard fences, and driveways. Loan funds cannot be used to refinance debts. Each loan is scheduled for repayment in accordance with the borrower's ability to repay, over a period not exceeding 33 years. The interest rate is 4 percent and the size of loans is limited to that amount necessary to finance dwellings and farm service buildings that are adequate but modest in size and design. Insured loans may be made to individual farmers, groups of farmers, and public or private nonprofit organizations to finance housing facilities for domestic farm labor.

5. Emergency loans are made to eligible farmers in designated areas where natural disasters such as floods and droughts have brought about a temporary need for credit not available from other sources. Emergency loans may also be made outside of designated areas to farmers suffering a production loss from a natural disaster affecting only one or a few farms. Loans may be made for the purchase of feed, seed, fertilizer, replacement equipment and livestock, and for other items needed to maintain normal operations. Loans may not be made to refinance debts or compensate applicants for their losses. Loans are scheduled for repayment when income from the crop or livestock financed is normally received. The interest rate is 3 percent and the size of the loan depends upon the system of farming to be financed and the actual needs of the applicant.



6. Watershed loans are made to local organizations to help finance projects that protect and develop land and water resources in small watersheds. Loans are made only under watershed plans approved by the Soil Conservation Service and, under certain conditions, by the Congress. Eligible local organizations include soil conservation districts, irrigation districts, drainage districts, flood prevention and control districts, municipal corporations, non-profit irrigation or reservoir companies, mutual water companies, water users associations and similar organizations. Funds may be advanced to pay the applicant's share of the cost of flood control dams and reservoirs, water supply reservoirs, rural water supply distribution systems, diversion dams, irrigation canals, drainage facilities, easements and for similar purposes. Loans are repayable over periods up to 50 years. The interest rate for 1962 is 2.742 percent and is set at the beginning of each fiscal year and applies to all watershed loans made during the year. Once the interest rate is set on a loan, it will not change during the life of that loan.

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### FEDERAL CROP INSURANCE CORPORATION

Crop Insurance a Franklin Idea. --The need for an all-risk insurance protection for growing crops goes back to the first man who planted a crop and then saw his work wiped out by the weather or insects or plant disease or wildlife. In the United States, the genesis of Federal Crop Insurance was expressed as long ago as 1788, when Benjamin Franklin wrote, "I have sometimes thought that it might be well to establish an office of insurance for farms against the damage that may occur to them from storms, blight, insects, etc. A small sum paid by a number would repair such losses and prevent much poverty and distress."

Crop Insurance Requires Federal Backing. --Early attempts at all-risk coverage by private insurance companies, beginning in 1899 and continuing into the 1930's, were failures. A widespread drought or freeze can cause loss to almost all insured crops over a wide area of the country. The extremely high risk of farming, coupled with the tremendous amount of money needed to pay losses, convinced insurance and agricultural experts that only the Federal government had the financial resources to operate a successful all-risk crop insurance program.

Drought of '30's Focused Need. --The need for Federal Crop Insurance became especially apparent during the severe droughts of the 1930's. In 1938, after several years of extensive study, Congress created the Federal Crop Insurance Corporation as part of the U. S. Department of Agriculture. The years following saw many changes and improvements as the Corporation added up to 100 counties a year and most of the basic farm income crops to its program. By the 1960's Federal Crop Insurance was available in more than 1,000 of the Nation's 3,000 agricultural counties. Crops insured include wheat, corn, cotton, citrus and tobacco, among others, with three new crops being added each year.

## Federal Crop Insurance Corporation

What Crop Insurance Covers. --Federal Crop Insurance is the only widespread all-risk protection available to farmers. All unavoidable causes of crop damage and destruction are covered. Most common among the more than 120 causes of crop loss for which the Federal Crop Insurance Corporation has paid indemnities are drought, flood, excess moisture, insects, plant disease, wind and hail.

Crop Insurance Minimizes Disaster Aid. --As the Federal Crop Insurance Corporation expands to cover more crops and counties, it will help reduce the need for Federal disaster aid in emergencies.

Insurance Policies Aid Credit Standing. --Federal Crop Insurance was designed by Congress "... to promote the national welfare by improving the economic stability of agriculture through a sound system of crop insurance...." Federal Crop Insurance, therefore, benefits not only farmers, but everyone. In addition, because Federal Crop Insurance policies are accepted as collateral for loans by many lending agencies, insured farmers can maintain their credit standing.

FCIC Aids Rural Stability. --The purpose of Federal Crop Insurance Corporation is to help maintain economic stability in rural areas, not to operate a profit-making insurance "business." The Corporation is operated in as businesslike a manner as is possible for an extreme high risk operation. No private insurance company now offers this much-needed all-risk service. No private company--although some have made limited but unsuccessful attempts--has been able to offer widespread crop investment protection covering all causes of crop destruction and damage.

How Crop Insurance Affects Total Economy. --Because most farm income is derived from the sale of crops, Federal Crop Insurance Corporation payments in bad years often supply the only cash available to farmers. From this cash comes the money to pay for everything the farmer buys. It follows that when farm income is drastically reduced by crop destruction or damage, the entire national economy suffers. Surrounding areas feel the pinch first as farmers are forced to put off buying new farm machinery, appliances, furniture, automobiles, clothing and insurance. From the rural supporting merchants, the pinch extends to urban manufacturing areas. Production of heavy farm equipment is reduced, leading to reduction in the output of steel and curtailment in other basic industries.

By helping to soften the economic blows which affect not only farmers but every segment of the economy, Federal Crop Insurance Corporation serves not only agriculture but the entire nation.



## FEDERAL EXTENSION SERVICE

What Is Extension?--More than 12-1/2 million families learn better farming and homemaking methods each year without going to school. This "out-of-school" learning is made possible by the Cooperative Extension Service--a unique educational system operating in every State. The Cooperative Extension Service is an educational agency of State land-grant colleges and the U. S. Department of Agriculture.

The Extension Service was established in 1914 by the Federal Smith-Lever Act. It is financed cooperatively by the Federal, State, and county governments, thus the name Cooperative Extension Service. Although it varies from State to State, at present the Federal Government pays about 40 percent of the cost of extension work. State governments pay about 35 percent, and the counties about 25 percent.

The Administrator of the Federal Extension Service is in charge of the Extension program in the U. S. Department of Agriculture. State Extension directors are in charge of the State programs. The State director is appointed by the State land-grant college or university supervisory board with the approval of the U. S. Secretary of Agriculture. The State director then works out with local officials the employment and supervision of county extension agents.

The Cooperative Extension Service has a nationwide professional staff of more than 14,000 workers. Approximately 11,000 of these are county agricultural, home demonstration, and 4-H Club agents; 3,300 are specialists and other professional personnel at State land-grant colleges; and 100 are members of the Federal Extension Service, U. S. Department of Agriculture.

How Extension Operates.--Most extension work falls into three general areas--agriculture, home economics, and 4-H. County agricultural agents generally work with farmers and farm boys; home demonstration agents work with farm women and girls; and (in some States) special 4-H Club agents work with boys and girls. Urban agents are located in some cities. County extension agents are usually located in the courthouse or Federal building at the county seat.

State extension staffs support the work of the county agents. State specialists in a great variety of subject matter fields interpret scientific findings that county extension agents pass on to people. Specialists help keep the county staffs informed about national programs and policies. They also keep experiment stations and the Department of Agriculture advised on local needs for new fields of research.

Extension educational programs deal with all aspects of producing, marketing, processing, utilizing, and consuming agricultural products. Agents and specialists have at their fingertips information on general farm subjects such as crops and soils, dairy, poultry and animal husbandry, forestry, farm

## Extension Service

machinery and buildings, marketing, and soil conservation. They can also provide information on lawns, gardens, flowers, and ornamentals.

Example: A farmer whose alfalfa is turning yellow may think that insects are responsible. He calls the county agricultural agent and asks him to take a look at the field. The county agent believes that the soil, not bugs, is causing the abnormal appearance. He sends a soil sample to the State Soil Testing Laboratory where tests confirm his suspicion. With this knowledge, the farmer is in a position to correct the soil deficiency--not waste his money killing bugs which were not the real problem.

The homemaking phase of extension work brings families the latest research and information to help them achieve better living. Agents encourage women to use the time, energy, money, and abilities of the family to achieve the goals the family considers important. Extension workers offer advice on how to: prepare good, nutritious meals at low cost; create a good home environment, select and buy clothes for the family; make the home more convenient, attractive, and comfortable; make housekeeping easier; and the like.

Example: A family buys a home freezer. Wanting to make best possible use of her new appliance, Mrs. Brown calls her home demonstration agent and asks for information on home freezing. The home agent tells her the best ways of preparing food to be frozen and gives her advice on the use of her freezer. For additional information the agent can refer Mrs. Brown to bulletins and pamphlets on home freezing.

The goal of Extension's 4-H program is to develop the country's most priceless resource--youth. Extension helps boys and girls prepare for successful living in a changing world. Club activities stress development of leadership, responsibility, cooperation, self-confidence, and quality workmanship. Above all, 4-H emphasizes training in citizenship. More than 2,300,000 youth are enrolled in 4-H Clubs.

Example: Larry, 14, wanted to go to college but his family could not afford it. Larry discussed his problem with his 4-H agent and asked his advice on how to earn money for college. The agent encouraged him to start a hog project and helped him obtain a bank loan to buy his first sow. The project was so successful that Larry and his father formed a father-son partnership. By the time Larry was 17, the family had a profitable 12-sow herd and Larry's college education was assured.

Trademarks of the Cooperative Extension Service have been the ideas, "Everyone can benefit from education," and "Most people will help themselves if they're shown the way." One of the key principles of extension education work is teaching by demonstration, based on the belief that people prefer to learn the value of a new way of doing something by actually trying it. Extension agents rely heavily on demonstrations by farm men and women and boys and girls for teaching new agricultural and home economics techniques. After seeing a demonstration, many people will try the new idea themselves.

Since the Extension program is based on the idea of "helping people to help themselves," volunteer leaders play an important part. Over 1,276,000 leading farmers, farm women, and other citizens serve as unpaid leaders.



They learn skills firsthand from the agents, then demonstrate or teach these skills to others in their community. They hold meetings, serve as leaders of more than the 94,000 4-H Clubs and 65,000 home demonstration clubs, and otherwise take the lead in making needed improvements in their communities.

Summary of Extension Activities. --Each year, extension agents make more than 23 million personal contacts with the people they serve. This includes farm and home visits, office calls, and telephone calls.

Agents explain and demonstrate better farming and homemaking practices in meetings with a total attendance of over 79 million per year. They help to train and work with over 1,276,000 local leaders. They write more than 758,000 educational news stories, prepare around 339,000 radio and television broadcasts, and distribute around 35 million bulletins. In addition, they conduct other teaching activities in an effort to provide large numbers of people with information.

Extension's Changing Role In The 1960's. --Since its founding, the Cooperative Extension Service has placed primary emphasis on agricultural production and, to a lesser extent, marketing. These efforts are not aimed at increasing production per se, but with increasing efficiency of production. Whenever the farmer produces a product at lower unit cost, someone benefits. In many cases, the farmer benefits directly. Almost invariably the consumer benefits through better food--often at lower cost. And without steadily increasing efficiency, the U. S. farmer would be unable to compete in world markets. Today's farmer must have and must use the right information today if he expects to stay in business. So Extension has a continuing and ever enlarging responsibility in the field of agricultural production and marketing.

But Extension recognizes that work in this area is not enough by itself. The phenomenal increases in agricultural efficiency in recent years have not solved many serious problems confronting the farmer and all of agriculture. So the Extension Service is turning increasing attention to broader economic and social problems.

Extension is focusing attention in three closely related areas. The first is in public affairs or public understanding of farm and other policy issues. Another is in helping individual farm families in resource adjustment and development on the farm. And the third is assisting rural communities in adjusting and making maximum use of their resources.

Extension educational programs in public affairs are aimed at better understanding of such matters as the economic and social forces at work in agriculture, various farm policy approaches and how these might affect the farmer and consumer, foreign trade policies and their effect on U. S. agriculture, local issues such as zoning and taxation, and many others.

These educational efforts are carried out with complete objectivity--with all sides of issues presented free of personal bias and judgment. They are aimed not at fostering one concept or another, but at providing the people a better basis for making intelligent decisions.



## Extension Service

The second area of Extension emphasis--helping with resource adjustment and development on the farm--consists of education for more intelligent decision-making.

Farmers and their families generally need help in critically appraising their operations, analyzing their resources and determining what changes in enterprises or operations are needed to get best returns--immediate and long run. Extension teaches management principles which enable farmers and their families to make needed adjustments and to use their resources wisely--in accord with their own values and goals.

The third part of Extension's broader educational job is assisting rural communities in adjusting and developing their resources. We have resources--both human and physical--in many rural areas which are not being used to their maximum potential. Now, through Rural Areas Development, an organized effort is being put forth to help those communities make optimum use of their resources.

Extension has been given responsibility for organizational and educational leadership. In the organization phase, Extension helps form development committees at State, area, and county levels. In the educational phase, Extension's job is to help local people identify problems, analyze resources, examine alternative courses of action, and develop plans and programs to channel their resources into most productive use.

How Extension Idea Originated. --At the beginning of this century the Mexican boll weevil crossed the border into Texas, where he destroyed the valuable cotton crop. To save this important industry, the Secretary of Agriculture called on Dr. Seaman A. Knapp, who was conducting farm demonstrations in the area, to find a way to combat this pest. While looking for a method to stop the weevil, Dr. Knapp, accidentally, discovered "The right psychological key which opened the door to the farmer's cooperation." This key was the technique of getting farmers to accept and apply scientific research through the self-help demonstration method. Dr. Knapp said, "What a man hears he may possibly doubt, what he sees he may possibly doubt, but what he does himself he cannot possibly doubt."

From this simple farm demonstration has come the unique system of extension, self-help education. Beginning with a single farm, extension education was spread to the home and family and the community. And today the process has become widespread throughout the Free World. Many countries in Africa, Asia, Europe and South America have sought and received assistance -- financial, technical, and professional -- from the USA, to establish similar extension systems.

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FOREIGN AGRICULTURAL SERVICE

Exports - A Symbol of Progress. --Symbolic of our great progress in agriculture, the United States is the world's largest exporter of farm products. American farmers not only produce enough to make our citizens the best fed and best clothed people in the world but also supply great quantities of food and fiber to consumers of foreign countries. Agricultural exports last year came to a record \$5 billion. One acre out of every six of our cropland produces for export.

Exports not only contribute to farm income but also build jobs and payrolls in cities. U. S. agricultural exports last year required financing, processing, inland transportation, storage, and ocean shipping for 41 million long tons of cargo--enough to fill over 1 million freight cars or 4,000 cargo ships.

The Foreign Agricultural Service is the agency of the Department of Agriculture that has primary responsibility for helping U. S. farmers to expand their export markets. The FAS export program is carried out in close cooperation with U. S. agricultural and trade groups. It includes a variety of approaches including: (1) gaining access to foreign markets by seeking to lower their trade barriers, (2) promoting sales of U. S. farm products in foreign markets, (3) providing foreign marketing information to the U. S. public through the worldwide system of agricultural attaches, and (4) helping to administer the Food for Peace program which makes surplus U. S. farm products available to friendly nations that lack finances to buy in the commercial market.

Lowering Foreign Barriers to U. S. Products. --Trade restrictions raised by foreign countries tend to nullify cooperative efforts by the Foreign Agricultural Service and U. S. private agricultural groups to develop markets abroad. The Department of Agriculture, through its Foreign Agricultural Service, is working closely with other Government agencies to get these barriers to trade eased or removed.

Through formal diplomatic representations, by taking part in international meetings such as the General Agreement on Tariffs and Trade (GATT), as well as through informal contacts, FAS presses continuously for greater access of U. S. agricultural commodities to foreign markets.

A close watch is kept on the agricultural policies and programs of the European Common Market, composed of France, West Germany, Italy, Belgium, the Netherlands and Luxembourg, a major marketing area for U. S. farm products.

Sharing U. S. Agricultural Knowledge. --U. S. agriculture keeps no secrets from the rest of the world. It is engaged in a great program of sharing its technology, its research results, its general farming know-how, and its developed plants and animals with farmers of other countries. Working with the

## Foreign Agricultural Service

Agency for International Development, (AID) other government agencies, land-grant institutions and others, the Foreign Agricultural Service contributed to the Nation's mutual security and national policy in 1961 by helping a total of 3,828 foreign agricultural visitors obtain special agricultural training in the United States.

Export-Minded U. S. Agriculture. --U. S. farmers have always been export-minded. For instance, we have been exporting tobacco for some 350 years, and foreign markets annually take about a third of our tobacco crop.

Our farmers are even more export-minded than ever before today, however, and an impressive array of new activities has been developed to expand our agricultural exports to new dimensions.

The Foreign Agricultural Service currently is working with more than 30 trade and agricultural groups in more than 50 countries in finding new markets for U. S. farm products.

This adds up to a bigger push for our agricultural commodities than we have ever known before. Exports statistics dramatically show the results--a record-breaking \$5 billion worth of U. S. farm products was exported last year.

USDA'S Eyes and Ears Overseas. --"Agricultural intelligence has a real place in foreign market development, and the Foreign Agricultural Service maintains a worldwide network of Agricultural Attaches to provide it." U. S. exporters and importers of farm products in this day of rapidly changing situations need a wide variety of facts and figures as a basis for forming sound judgments and conducting their international trade operations.

A continuous flow of information on foreign production, competition, crop conditions, value of exports and imports, and policies of foreign governments comes into FAS from Agricultural Attaches in 54 posts abroad. This information is passed on to the American business community, including processors and producers, as well as others in position to use it.

Sharing U. S. Agricultural Abundance. --The ability of U. S. agriculture to produce more than the American people can use poses certain problems of production adjustment. But it is also a blessing to more than 100 less fortunate countries that receive food and fiber from the United States under the Food for Peace program.

During 1961 about 45 billion pounds of agricultural commodities went overseas under Food for Peace. Of this flood of products, 74 percent were programmed under Title I of Public Law 480, administered by the Foreign Agricultural Service, and of the foreign currency obtained in payment, 83 percent was loaned or granted for mutually desirable economic development projects, including loans to private enterprise. This national policy of using farm products to help friendly countries has given a dynamic new dimension to American food reserves.



## FOREST SERVICE

National Forests--A Vast Natural Resource Domain. --Forests cover about one-third of the United States, and some 14 percent of the forested area is National Forest, administered by USDA's Forest Service. These National Forests account for about 15 percent of timber harvested annually. Even though they contribute more wood than would seem likely from the percentage of land occupied, the National Forests are still growing timber faster than it is being cut. As an additional benefit to areas where National Forests are located, 25 percent of the Forest receipts are returned to local governments for school and road funds. The National Forest and National Grasslands last year also received 102 million recreation visits, provided grazing range for nearly six million livestock; offered fishing and hunting opportunities for millions of sportsmen; and protected the watersheds on which 2,000 municipalities and thousands of farms and industries depend. The National Forests are an outstanding example of public lands managed in the public interest.

Gifford Pinchot--Pioneer Conservationist. --Conservation of natural resources is an important area of USDA work, and it is a noteworthy fact that the concept of conservation began in the Department with the founder and first Chief of the Forest Service, Gifford Pinchot.

In 1907, during the early days of the Forest Service, every agency having anything to do with any natural resource pursued its own course, frequently one opposite to that of other agencies with which it came in contact. As a forester, Pinchot knew that forests were related to streams and inland navigation, to water power and flood control, to soil and erosion, to coal and oil and other minerals, to fish and game, and many other natural resources. But that was all.

Then as Pinchot himself wrote about it, "Suddenly the idea flashed through my head that there was a unity in this complication--that the relation of one resource to another was not the end of the story. Here were no longer a lot of different, independent, and often antagonistic questions, each on its own separate little island, as we had been in the habit of thinking. In place of them here was a single question with many parts. Seen in this new light, all these separate questions fitted into and made up the one great central problem of the use of the earth for the good of man."

This idea seems elementary to us today, but, and again to quote Pinchot, "so far as I knew then or have since been able to find out, it had occurred to nobody, in this country or abroad, that here was one question instead of many, one gigantic single problem that must be solved if the generations, as they came and went, were to live civilized, happy, useful lives in the lands which the Lord their God had given them."

So he talked the idea over with some of his natural resource conscious friends, and after they had refined it and named it "conservation," they presented it to President Theodore Roosevelt. T. R. realized the importance of the concept and seized upon it immediately. He publicized it and brought the word "conservation" into the American vocabulary.

## Forest Service

Forestry Research Means New Products From Trees. --For all our technological progress, we Americans are not yet out of the woods. We wear rayon clothing, put artificial vanilla flavoring in our food, and use many paper and plastic goods in our daily lives. All of these products come from trees.

Wood, because of its beauty and unique functional qualities, will never go out of our lives completely. But even if it did, research carried on by the Department's Forest Service has guaranteed that we will continue to use wood--transformed into many other items.

In addition, other Forest Service research will equip us with better insect, disease and fire-fighting tools to help us grow healthier wood. Other projects are underway to develop new, hybrid trees that can resist insects and disease attacks. As an added benefit, the Forest Service is working out selective logging methods that it believes will increase the flow of nearby streams, making more water available for consumption.

Trees for the Future. --One of USDA's most successful cooperative efforts with the States and with private landowners is the nationwide tree planting program. Last year, even though tree planting declined a little from its 1960 record, Federal agencies, States, and private landowners planted nine trees for every American man, woman, and child. That's a total of 1.7 billion trees. We still need to plant more trees, particularly on the small farm and other private ownerships, but this is progress on an important and gigantic job.

These plantings represent a tremendous investment in the future well-being of our Nation. They will provide valuable timber; their roots will hold the soil in place, stopping erosion of precious topsoil and preventing floods. Many trees have been planted on submarginal crop lands under the Conservation Reserve Program and these will bring added income to their farmer-owners. Almost 35,000 acres of trees were planted to form windbarriers on the farms of the Northern Great Plains where they will deflect winds that would otherwise carry off the soil - at the same time providing a pleasant environment for the farm family.

The Federal program provides financial assistance to State-operated nurseries, enabling them to sell planting stock at lower prices.

Forests Help Rebuild Rural America. --The need for rural areas development in an increasingly urbanized America concerns many agencies in the Federal Government. One of the most promising programs is one sponsored by the Forest Service to encourage rural communities to develop their forest resources. Economists predict that the demand for timber and other wood products will double by the year 2000. Much of this increased market will have to be supplied from America's 4-1/2 million undeveloped small forests, many of them on farms.

With a dual aim of plentiful timber for the future and a better life for the rural people of today and tomorrow, the Forest Service, through RAD, is helping many communities to develop both their forests and some basic



wood-processing industries. With what appears to be an approaching crisis in outdoor recreation, when demand will far exceed the capacity of our public facilities, the Forest Service is also pointing out to small forest owners the advantage of managing their woods according to tested multiple use principles: not just for timber, but for recreation, wildlife, and water as well.

Multiple-Use--Proven System of Forest Management. --It is a rare occurrence, after humanity's thousands of years of trial and error experience with land management, when a new system is evolved that is productive and does not damage the land. But the Forest Service devised one called multiple use. It has proved such a sound method for managing the National Forests that Congress made it the law governing administration of these areas. The system is now being widely accepted and promoted on private forest lands, particularly those in large industrial ownerships.

The philosophy of multiple use is that a forest is more than just a wood factory. Forests contain many grassy areas suitable for grazing; they are the home of wild animals; they protect the streams running through them from silting and erosion; safeguard vital water supplies; and they are places of beauty offering many opportunities for recreation. Multiple use management recognizes that all these renewable resources are related and works to keep them producing on a sustained basis for the public good. It also keeps the many uses of forest resources balanced, so that they interfere with each other as little as possible.

Let's measure multiple use by the yardstick of results. In the last 10 years, the annual harvest of timber from the National Forests has doubled to 8-1/2 billion board feet. At the same time, recreation visits have tripled to more than 100 million a year. The timber harvest will double again before the end of the century and recreation visits are expected to exceed 600 million a year. All the while, the Forest Service will see to it that the National Forests keep growing more timber than is cut and that facilities for recreation, safe water supplies, good wildlife habitat and high quality ranges are maintained.

From Dustbowl to National Grasslands. --The Great Plains and Western lands now known as the National Grasslands display the results of one of the biggest land rehabilitation projects of all time. There are 18 of these National Grasslands, covering 3.8 million acres in 11 States. They support about 200,000 livestock annually and also provide a habitat for many wild animals and birds.

When the Government began buying these lands from destitute farmers in the 1930's, they were largely dustbowls. As grassy prairie, the land had flourished, but as farms, it blew away. In a massive revegetation effort the Department restored a permanent grass cover to the land and began to permit grazing--grassland agriculture as we call it.

Now under the management of the Forest Service, these lands are administered for the same multiple uses as the National Forests. In addition to the public grazing, they offer camping and picnicking, hunting and fishing opportunities, protection against erosion for many critical watersheds, and even some timber.



OFFICE OF RURAL AREAS DEVELOPMENT

Need for Rural Areas Development. -- To some people, rural America means a healthy, happy life of working in the open air with living things on the land, a way of life that grows dearer to city people as more and more years separate them from the long hours and hard work of the farms where they, their parents, or their grandparents grew up.

To others, rural America means the farm problem, too much production of wheat, feed grains, and some other commodities; too little income; and high government costs.

But neither nostalgia nor a statement of the farm problem correctly portrays rural America today. There are 54 million people, nearly a third of our population, living in the Nation's open country and villages. Probably another 20 million people live in the small cities that are an integral part of rural America. Rural America in a sense is made up of a cross-section of the United States, a cross-section lacking opportunities many Americans take for granted.

Rural America Today. -- Although less than a third of our people live in rural areas, more than half of the Nation's poverty is found there. Of the country's 8 million families with average yearly incomes of less than \$2,500 more than four million live in rural areas.

Most of agriculture's modern technology has by-passed many of these areas. The people haven't had the means to take advantage of improved methods, mechanization, and other advances in technology.

Of the 22 million rural youth (under 20 years of age), more than 4 million are in the families with low incomes. And more than 1 million children are born each year in rural America.

Even the farmers who operate efficient family farms have lagged behind the rest of the country in income. Caught in the middle of the cost-price squeeze, many of them have survived because they lived in part from capital investment. Efficiency, capital, labor, and management skills just haven't paid off as well in agriculture as they have in the nonfarm economy.

Rural Areas Development--New Concept of Rural Aid. -- The rural areas development effort is a new concept and a new approach for helping rural people to better their lot. It is the Department of Agriculture's way of aiding people who are working to help themselves. The ultimate objective is better living for rural people, both farm and nonfarm.

Its goals are: prosperous family farms; new jobs in trades, services, and industry; improved management, use and conservation of natural resources; expanded public services and facilities such as roads, hospitals, schools,

power supply, and water systems; guidance and training of rural youth and adults; and in some areas a complete rural renewal program, similar to urban renewal programs, now bring new life, new hope, and new opportunities to parts of some cities.

Office of Rural Areas Development. -- This office was created within the Department to expedite the application and use of the resources of all agencies in the Department of Agriculture and elsewhere that can contribute to the rural areas development program. It also provides leadership and initiative in the formulation of current and long-range rural areas development policies and programs for the Department.

The Office of Rural Areas Development, under the delegated authority of the Area Redevelopment Administration of the Department of Commerce (PL 87-27), has prime responsibility of reviewing and recommending to Commerce approval of overall economic development programs from designated rural areas, as well as reviewing and recommending approval of projects in rural areas for ARA assistance.

The work of the Office of Rural Areas Development is under the supervision of the Director of Agricultural Credit and is guided by a Department RAD board, made up of representatives from each Agriculture agency. The Director of ORAD serves as Board Secretary. The actions of ORAD are further guided by a 34-member public advisory committee on rural areas development, which meets periodically.

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## RURAL ELECTRIFICATION ADMINISTRATION

What One Kilowatt-hour of Power Can Do. -- REA-financed electric systems have brought comfort and convenience to rural areas. One kilowatt-hour of electricity can do any of these jobs: light a 100-watt bulb for 10 hours, pump 500 gallons of water from a well, run a freezer for 12 hours, operate a washing machine for 4 hours, run an electric refrigerator for a day, run a TV set for 3 hours, or run an electric clock for 20 days.

Farmwife and Children Helped Electrify Rural America. -- There was the Virginia farmer who had taken electric service only under pressure from his wife and children. He had called the electric co-op manager a few names, and after his farm was electrified, the manager dropped around to check on the service. The farmer said: "You and I fussed a good deal about this electric proposition but I do not mind telling you that if a man were to offer me \$2,500 today to take out this electricity, I would throw him off the place."

Another farmer told the manager that his sons had never once considered farming as a career before electrification. "Today," he said, "the boys are talking about going to agricultural college and making big plans for the farm. I would never have believed electricity could do that."

Did You Ever Figure Your Own Electric Bill?--Rural people who get electricity from lines financed by the Rural Electrification Administration show their enthusiasm in many ways. For example, many people pay their bills ahead of time. At harvest, thousands of farmers deposit from \$20 to \$60 with the local co-op against future billings. One cooperative, short of employees, couldn't keep track of all the money and had to write members that "it would convenience us greatly if bills are not paid at the office until statements are received."

Many cooperatives ask members to read their own meters and figure their own bills. One farmer whose meter was damaged by lightning was told to pay a bill of \$5, the same as his previous month's bill. He sent in \$10 instead. "I'm sure I used at least that much current this month," he explained.

Farm families also were quick to report outages, often driving miles to the co-op office to make a report, in the early days of the REA program. They were patient when the power went off. "An outage," wrote one woman, "helps us to remember how it was before electricity, and we are very thankful."

A Hen Cooperates and REA Makes Headlines.--The influence of REA on the Nation's farm scene made itself felt in many ways. In 1939 in Kentucky, an enterprising pullet in a newly lighted chicken-house responded to its environment by laying an egg shaped like a miniature light bulb. The press was delighted; the egg was mentioned in a nationwide radio broadcast; months later REA received clippings of stories about the egg from newspapers in Sweden and Spain. Still later, it wound up at the New York World's Fair.

The editors who liked that story so much knew it concerned more than a pullet and a bulb-shaped egg. They sensed that something big and new was happening to American agriculture, and they were right. Electricity was the biggest thing that had happened to farming since the arrival of the Model-T.

When the Rural Electrification Administration was created by Executive Order in May 1935, less than 11 percent of the Nation's farms had central station electric service. Since its establishment, REA has greatly stimulated extension of electric service into rural areas. As the Department of Agriculture approached its centennial observance, REA estimated that 97 percent of the 3.7 million farms recorded in the 1959 Census of Agriculture, are now electrified. REA-financed systems, now operating in 46 States, Puerto Rico and the Virgin Islands, serve slightly more than half of these electrified farms.

400 Uses of Electricity on the Farm.--How do rural people use electricity? On the farm alone, more than 400 uses of electricity are known. At least 250 of them increase production or make farming more profitable.

The use of electricity furnished by REA-financed lines has more than doubled in the past ten years. In 1951, the average monthly consumption of electricity per residential consumer was 166 kilowatt-hours. In 1961, the average was 370 kwh per month -- and the demand continues to rise.



Rural People Using More and More Power. --For more than half a century, farm electrification advanced very slowly in the United States. In 1935, when REA was established, only 10.9 percent of all farms in the United States had electric service. Fifty-three years had gone by since the first central generating system in the Nation went into service, in 1882. Even though 97 percent of the farms are now electrified, the task of REA and its borrowers is far from complete. Rural distribution systems continue to require increasing supplies of wholesale power. System capacity is being increased, and more than 100,000 new consumers are being connected each year.

REA-financed Lines Extend 1.5 Million Miles. --Nine out of ten of the organizations receiving REA electric loans are cooperatives. They are local, independent, private enterprises, organized under state laws by rural people seeking electric service. REA has approved \$4.5 billion in loans to 1,091 borrowers. The list includes 988 cooperatives, 51 public power districts, 28 other public bodies, and 24 commercial electric companies. The borrowers operate almost 1.5 million miles of line serving nearly 5 million consumers in 46 States, the Virgin Islands and Puerto Rico.

\$1.5 Billion Returned to U. S. in REA Program. --REA does not make any grants or gifts of money. It makes loans. These loans are being repaid, with interest, under the terms of the Rural Electrification Act. REA borrowers have paid the Government more than \$1.5 billion in principal and interest. This figure includes \$177 million paid ahead of schedule. Only one borrower is overdue on its payments.

"Area Coverage" Key to Rural Electrification. --REA electric borrowers use the "area coverage" policy in their efforts to furnish electricity to rural areas. The lines they build, with REA financing, are designed to serve entire areas, including less densely settled sections as well as more populous areas. When REA examines the loan application, it considers the feasibility of the proposed system as a whole, not each individual line or section. This policy tends to limit the possibility of unserved "pockets" of consumers, in isolated areas.

The success of the REA electrification loan program prompted Congress to amend the Rural Electrification Act to provide for the extension and improvement of telephone service, on the same basis. Under this amendment, approved in October 1949, REA can make loans to existing companies and to cooperative, non-profit, limited-dividend or mutual associations, for the purpose of improving and extending telephone service in rural areas.

Telephones Ringing in Rural America. --The Rural Electrification Administration has approved \$856 million in telephone loans to 556 commercial companies and 212 cooperatives to finance the extension and improvement of rural telephone service. These borrowers, located in 45 States and the Virgin Islands,

## Soil Conservation Service

operate 350,000 miles of telephone line. They are repaying their loans, with interest, and have paid more than \$6 million to the Government ahead of schedule.

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### SOIL CONSERVATION SERVICE

Erosion Control Original Job. -- In the beginning, responsibilities of the Soil Conservation Service were largely in the field of erosion control. But the scope of the agency's responsibilities have broadened greatly as the knowledge of proper land use increased and the pressures on the land and water resources mounted. Today the Service brings together scientists and technologists from every field to help diagnose land problems and prescribe successful treatment.

What SCS Does. -- The Soil Conservation Service develops and carries out a national soil and water conservation program through local soil conservation districts created and managed by farmers and ranchers under State law. In addition it carries out the Department of Agriculture's responsibilities in watershed protection and flood prevention projects and river basin investigations, administers the Great Plains Conservation Program and the National Cooperative Soil Survey, makes and coordinates snow surveys and water supply forecasting in the Western States, helps develop the annual Agricultural Conservation Program, and gives technical assistance to farmers in this and other Department programs.

Districts Number 2,900. -- Today the soil conservation district is the central source of help and information about soil and water conservation in nearly every community in the Nation. All 50 States have soil conservation district enabling acts. Districts, numbering more than 2,900, cover 92 percent of the land in farms and 96 percent of the farms in the United States. Twenty-four States plus the Virgin Islands and Puerto Rico are completely blanketed by districts.

Districts 25 Years Old. -- The soil conservation district movement in the United States celebrates its 25th anniversary this year (1962). During that short span a third of our Nation's land has been safeguarded against the ravages of erosion. In the Nation's 2,900 districts there are 1,887,000 farmer cooperators and more than 1,350,000 of these farmers have basic conservation plans for their farms.

Special Great Plains Program. -- The Great Plains Conservation Program, which the Soil Conservation Service administers, was enacted in 1956. It is a long-term soil and water conservation program aimed at bringing about needed land use adjustments and the application of enduring conservation practices in 10 Great Plains States. Need for the program is reflected in the demand for assistance under it. As of February 1, 1962, 7,615 contracts had been signed for conservation work covering almost 20 million acres of land. There was a backlog of almost 3,000 waiting to get into the program.

Small Watershed Program Bridges Gap. -- Small Watershed Program (Public Law 566), which was enacted in 1954, has proven to be extremely effective in bridging the gap between the conservation work done on the individual farms and that of the larger river basins. As of March 1, 1962, a total of 1,654 applications for assistance under the act had been received from 48 States and Puerto Rico for watershed work on 116 million acres of land. Of these 720 have been approved for planning and 370 for actual operation.

Watershed Benefits Widespread. -- The Small Watershed Program offers more than just flood protection and erosion control. The benefits extend far beyond the farmer's pasture. With land in the watershed stabilized, maintenance costs on roads and bridges have been greatly reduced. The small flood prevention dams have been developed into multiple use reservoirs to supply nearby communities with water for future industrial and domestic expansion. Many of these reservoirs have been developed for recreational purposes. Already in some areas the Small Watershed Program has resulted in new industry, more rural employment and needed recreational facilities.

Needs Inventory Gives Conservation Picture. -- The National Inventory of Soil and Water Conservation Needs, for which the Soil Conservation Service has major responsibility, provides the most thorough and objective picture we have ever had of the Nation's privately owned land and water resources. For the first time we now know how much land we have in different classifications, what it is suited for, the conservation measures needed and the change in land use expected by 1975. This inventory was made by 30,000 agricultural leaders in 3,000 counties across the Nation.

Much Good Land Going Into Nonfarm Uses. -- The need for developing and improving our soil and water resources has never been greater than it is today. Vast chunks of land are being taken out of agricultural use by our expanding population each year. New housing developments, industries and super highways now stand on land that once grew a portion of this Nation's food and fiber. Proper land use and planning are essential in all these areas. The Soil Conservation Service offers assistance in this land transfer.



## Soil Conservation Service

Soil Conservation Act Passed in 1935. --The Act which established the Soil Conservation Service in the Department of Agriculture was passed by the 74th Congress in 1935 without a dissenting vote. It was the year of the worst dust storm in history. On April 27, 1935, it was signed into law by President Franklin D. Roosevelt. On the same day, Henry A. Wallace, then Secretary of Agriculture, directed that the Soil Erosion Service, a temporary bureau, become the Soil Conservation Service with status as a permanent bureau in the Department. Hugh Hammond Bennett was appointed to head the new bureau.

Dust Storm Spurred Action. --Hugh H. Bennett, a pioneer of the conservation movement, relied heavily on visual demonstrations to get his messages across. At one crucial point in his life, Mother Nature provided the most convincing visual of all. This was March 6, 1935, when Bennett was testifying before a Senate committee on the need for a program to protect our natural resources. As he was testifying, a gigantic dust storm that had hit the Great Plains two days before rolled into Washington, D. C., turning the skies a copper color. The air became heavy with fine dust from 2,000 miles away. The committee members watched from the Senate Office Building windows, then turned, with renewed interest, to hear Bennett's pleas for erosion control. They acted swiftly. The resolution they were considering became the Soil Conservation Act and passed both the House and Senate without a dissenting vote.

Bennett Was Conservation Showman. --Hugh Bennett's appearances before Congressional committees are legendary. He once spread out a thick bath towel on a table before a committee, tipped the table a bit, and poured half a pitcher of water on the towel. The towel absorbed most of the water, allowing little to flow onto the rug. Then he lifted the towel and poured the rest of the pitcher on the smooth table top, and watched the water wash over the edge and onto the rug. He told the committee the towel represented well covered, well managed land that could absorb heavy, washing rains. The smooth table top represented bare, eroded land with poor cover and management.

Wildlife Is a Farm Crop. --The Soil Conservation Service has played a major role in helping agricultural lands produce a wildlife crop. The Service provides specialized technical assistance in the conservation, development and utilization of land and water for the production of fish and wildlife. Many conservation practices aid wildlife. In the Nation's 2,900 soil conservation districts more than 8.5 million acres of trees have been planted; more than 4.4 million acres have had wildlife practices applied; more than 41 million acres of pasture and range land have been seeded; and more than 1 million ponds have been built. In addition there are other practices that benefit wildlife such as stripcropping, stubble mulching, grassed waterways and crop rotations.

Surveyors Measure Mountain Snow. --The Soil Conservation Service's snow survey and water forecasting service is extremely important to agriculture, industry and cities in the Western States. Service personnel cover about

71,000 miles each winter by skis, oversnow machines and aircraft measuring the snowpack on some 1,300 snowsurvey courses in remote, rugged mountain areas. Data they collect are translated into a water supply forecast. Water users in the West base their plans for the year's operation on this streamflow forecast for most the year's water supply comes from the snow that falls on the mountains.

SCS Men Trained in Radiation Monitoring. --In the event of nuclear war or major nuclear reaction accidents, the Soil Conservation Service must shoulder important responsibilities. It now has more than 3,500 technicians trained as monitors in radiological defense and has a national network of radiation monitoring stations where radioactive fallout can be detected, measured, evaluated and reported.

Soil Surveys Base for Conservation Work. --The Soil Conservation Service has leadership responsibility for the National Cooperative Soil Survey. These surveys provide the base for nearly every other phase of the Service's program and are used by many other agencies and organizations. Soil scientists to date have surveyed more than 700 million acres. They classify and map each kind of soil according to its capabilities and management needs for the production of field crops, grasses and trees. They also determine the suitability of the soils for various kinds of engineering construction. These survey findings are not limited to agricultural uses. Today they are used extensively by foresters, engineers, urban planners, land appraisers and others in sound planning concerning the future uses of our land and water resources.

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## STATISTICAL REPORTING SERVICE

Agricultural Statistics Pre-date USDA. --The U. S. Government gathered agricultural statistics nearly a quarter of a century before the Department of Agriculture was created. In 1839, the Commissioner of Patents, Henry Ellsworth, received \$1,000 from Congress to gather agricultural statistics, collect and distribute seeds, and conduct agricultural investigations. In his first report, for 1841, Ellsworth estimated the United States had 17,845,217 people; that the Nation's farms produced 91 million bushels of wheat, 387 million bushels of Indian corn, 113 million bushels of potatoes, 578 million pounds of cotton, and 397,000 pounds of silk cocoons. Today, our population is more than 10 times as large as in Ellsworth's time, our production of wheat, corn, and cotton has increased in about the same proportion, but production of potatoes has gone up only about four-fold, and our production of silk cocoons, so far as USDA's Statistical Reporting Service knows, for a long time has been zero.

## Statistical Reporting Service

Long Tradition of Fact Gathering. --When the U. S. Department of Agriculture was created in 1862, one of its assignments was to gather statistics useful to agriculture, and a Division of Statistics was established the following year. The name of the fact-gathering agency has changed many times, and the responsibilities have multiplied many-fold, but it has been in business constantly since its beginning. All the statistical activities of the Department were brought together under one agency in 1961, when the Statistical Reporting Service was established. Nationwide in scope, with headquarters in Washington, it has 45 offices gathering information in all 50 States.

How Information Is Gathered. --USDA's Statistical Reporting Service issues from Washington about 600 crop, livestock, and price reports a year. The 45 field offices issue similar reports for the 50 States. Most of the information comes from questionnaires returned by some 800,000 farmers and businessmen who are volunteer reporters. USDA statisticians gather supplementary information by enumerating farms in scientifically selected sample areas, and by making careful observations and measurements of test plots during the growing seasons. Most of the information is gathered by the State offices, then sent to Washington where nationwide estimates are prepared. When crop reports are released the information has gone full circle--from voluntary crop reporters who supplied the data, back to them and their neighbors to help them in their decision making.

Safeguarding Farm Facts. --When reports on speculative crops are being prepared USDA's Statistical Reporting Service takes special security measures. Such precautions are taken to prevent premature disclosure of information which might give an advantage in trading in such commodities as corn, wheat, and cotton. The reports, prepared behind locked and guarded doors, are released at a previously announced time, so that all may have equal access to the information. Seconds after the release time, information from the reports is transmitted by telephone and wire to newspapers, magazines, wire services, radio and television stations across the Nation.

Users of Agricultural Statistics. --There are many users of crop, livestock, and price reports issued by USDA's Statistical Reporting Service. Farmers themselves use statistical information to help them decide what to produce, and when and where to sell it. The reports also are used by business firms which process and distribute farm products, and by firms which supply farmers with fertilizer, machinery, and other production needs. The press, one of the big users of farm facts, helps consumers make use of agricultural statistics as guides to buying. Another large user is the government--Federal and State. Acreage allotments, price supports, and conservation programs are based on statistical information.

G. Washington, Statistician. --One of the earliest assemblers of agricultural statistics was President George Washington. In 1791, a friend in England wrote to him for information about farming in the United States. Washington



in turn wrote to several leading farmers in five States asking for such things as prices and rents of farming land, production and prices of major crops, prices of livestock, and a list of State taxes. He concluded his letter: "The tendency of this inquiry will be my apology for the trouble it may give to you. I am, dear Sir, with great regard, your most obedient servant. G. Washington."

The Farm That Feeds Your Family. --Suppose the Nation's 3.7 million farms were divided into farms that would feed an average-size family, what would one of these farms look like? Because we have one of the best farm fact gathering forces in the world--USDA's Statistical Reporting Service--we can get a pretty good picture. It would be about the size of a city block, or a little over 9 acres, planted as follows: 5 acres to pasture and hay, 2-1/2 acres to corn, oats, and other grain for feed animals which in turn help to feed you; about one-half acre to wheat for bread and other baked goods; a plot 100 feet by 50 feet to potatoes, vegetables, and melons; a field of soybeans 125 feet square; and a field of cotton 95 feet square to provide salad oil, margarine, and shortening. For your family's meat the farm would raise six-tenths of a beef animal, one and three-quarters hogs, four-tenths of a lamb, and a fifth of a veal calf, 45 broiler chickens, and a large and small turkey. Your milk, butter, cheese, and ice cream would come from four-tenths of a dairy cow, and eggs from a half-dozen laying hens.

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